What is claimed is:

1. A method for determining a control point of an article traveling on a conveyor system comprising:

providing a first conveyor having a downstream end, said first conveyor having a first article conveying surface;

providing a second conveyor having an upstream end aligned with said downstream end of said first conveyor, said second conveyor having a second article conveying surface operating at least occasionally at a different speed than said first article conveying surface;

defining a reference point at a known location with respect to said first conveyor;

detecting when a change occurs in the speed of an article due to said article having moved sufficiently from said first conveying surface to said second conveying surface such that the speed of said article is controlled by said second conveying surface rather than said first conveying surface; and

determining the position of the article with respect to the reference point when said change in speed is detected.

2. The method of claim 1 wherein said control point is set to be the point on said article which is aligned with a fixed reference point when said change in speed occurs.

3. The method of claim 1 wherein said detecting of said change in speed of said article comprises detecting a change in spacing between said article and an upstream article adjacent to said article.

4. The method of claim 2 wherein said fixed reference point is located halfway between said first and said second conveyors.

5. The method of claim 1 further comprising:

providing a horizontal array of photo-detectors positioned alongside said first conveyor; and

monitoring said photo-detectors to determine when said change in speed of said article occurs.

6. The method of claim 5 further comprising detecting a change in spacing between said article and an upstream article adjacent to said article.

7. The method of claim 1 further including adjusting the relative speed of said first conveying surface with respect to said second conveying surface after said control point has been determined.

8. The method of claim 7 wherein the adjusting of the relative speed of said first conveying surface with respect to said second conveying surface includes setting the speeds of said first and second conveying surfaces equal to each other.

9. The method of claim 1 further including detecting a front edge of said article, determining the position of said front edge of said article on said second conveying surface when said change in speed occurs, and computing the distance of said front edge to said control point of said article.

10. A method of controlling a gap between a first article and a second article traveling on a conveyor system comprising:

providing a first conveyor;

providing a second conveyor aligned with said first conveyor, said second conveyor operating at a different speed than said first conveyor;

measuring the control point of said first article as said first article passes from said first conveyor to said second conveyor;

measuring any gap between said first article and said second article while said first article is traveling at least partially on an adjustable speed conveyor;

comparing said measured gap to a desired gap; and

adjusting the speed of said adjustable speed conveyor while said second package is not on said adjustable speed conveyor in order to reduce any difference between said measured gap and said desired gap.

11. The method of claim 10 wherein said adjustable speed conveyor is the same as said second conveyor.

12. The method of claim 10 wherein said measuring of said gap comprises:

measuring the location of a leading edge of said first article at a particular time;

measuring the location of a trailing edge of said second article at substantially the same time as said leading edge of said first article is measured; and

determining the distance between said leading edge of said first article and said trailing edge of said second article.

13. The method of claim 10 further comprising:

re-measuring said gap between said first article and said second article while said first article is at least partially still on said adjustable speed conveyor; and

readjusting said speed of said adjustable speed conveyor based upon any difference between said re-measured gap and said desired gap.

14. The method of claim 13 wherein said re-measuring of said gap and said readjusting of said speed are repeated multiple times per second.

15. The method of claim 10 wherein measuring the control point of said first article as said first article passes from said first conveyor to said second conveyor comprises:

detecting when a change occurs in the speed of said first article due to said first article having reached said second conveyor; and

determining said control point of said first article to be the point on said first article which is aligned with a fixed reference point when said change in speed occurs.

16. The method of claim 15 wherein said detecting of said change in speed of said first article comprises detecting a change in spacing between said first article and a third article adjacent to and upstream of said first article.

17. The method of claim 10 wherein said first article is positioned upstream from said second article.

18. The method of claim 10 wherein said measuring of any gap between said first article and said second article further comprises providing a horizontal array of photo detectors positioned at least partially along said adjustable speed conveyor.

19. The method of claim 18 wherein said array of photo detectors includes an array of photo emitters positioned along a first side of said adjustable speed conveyor and an array of photo receptors positioned along a second side of said adjustable speed conveyor, said array of photo emitters periodically emitting electromagnetic signals which are detected by said array of photo receptors unless one or more articles are positioned on said adjustable speed conveyor between said array of photo emitters and said array of photo receptors.

20. The method of claim 10 further including measuring said length of said first article.

21. The method of claim 10 further including limiting the acceleration of said adjustable speed conveyor.

22. The method of claim 21 further including changing the limit of the acceleration of said adjustable speed conveyor based at least partially upon the measurement of the control point of said first article.

23. A method of controlling a gap between a first article and a second article traveling on a conveyor system comprising:

providing a first conveyor, said first conveyor being an adjustable speed conveyor;

providing a second conveyor aligned with said first conveyor;

measuring any gap between said first article and said second article at a first moment in time while said first article is at least partially positioned on said first conveyor;

calculating any difference between a desired gap and said gap measured at a first moment in time;

generating a first command for adjusting the speed of said first conveyor in order to reduce any difference between said desired gap and said gap measured at a first moment in time, said command being based upon said difference between said desired gap and said gap measured at a first moment in time;

measuring any gap between said first article and said second article at a second moment in time while said first article is at least partially positioned on said first conveyor;

calculating any difference between said desired gap and said gap measured at a second moment in time; and

generating a second command for adjusting the speed of said first conveyor in order to reduce any difference between said desired gap and said gap measured at a second moment in time, said second command being based upon said difference between said desired gap and said gap measured at a second moment in time.

24. The method of claim 23 wherein said measuring of any gap at either said first or said second moment in time comprises:

measuring the location of a leading edge of said first article at a particular time;

measuring the location of a trailing edge of said second article at substantially the same time as said leading edge of said first article is measured; and

determining the distance between said leading edge of said first article and said trailing edge of said second article.

25. The method of claim 23 wherein said first conveyor is positioned upstream of said second conveyor.

26. The method of claim 25 wherein said first article is positioned upstream of said second article.

27. The method of claim 23 wherein said first command is proportional to the difference between said desired gap and said gap measured at a first moment in time.

28. The method of claim 23 wherein said first and second commands are generated within one second or less of each other.

29. The method of claim 27 wherein said measuring of said gaps at said first and said second moments in time occurs less than one second apart.

30. The method of claim 23 wherein said measuring of any gap at said first moment in time further comprises providing a horizontal array of photo detectors positioned at least partially along said first adjustable speed conveyor.

31. The method of claim 23 wherein said first command can specify at least one hundred different speeds for said first adjustable speed controller.

32. The method of claim 23 further including measuring a control point of said first article as said first articles passes over a transition point between two conveyors.

33. The method of claim 32 wherein said two conveyors comprise said first adjustable speed conveyor and a third conveyor located upstream of said first adjustable speed conveyor.

34. The method of claim 32 wherein said measuring of said control point comprises:

detecting when a change occurs in the speed of said first article as said article crosses said transition point; and

determining said control point of said first article to be the point on said first article which is aligned with a fixed reference point when said change in speed occurs.

35. The method of claim 34 wherein said detecting of said change in speed of said first article comprises detecting a change in spacing between said first article and a third article adjacent to and upstream of said first article.

36. The method of claim 32 further including limiting the acceleration of said first adjustable speed conveyor based at least partially upon the measurement of said control point.

37. A device for measuring a control point of an article traveling on a conveyor system comprising:

a first conveyor;

a second conveyor aligned with said first conveyor and downstream of said first conveyor, said second conveyor operating at least occasionally at a different speed than said first conveyor; and

a sensor adapted to detect when a change in speed occurs in said article due to said article having moved sufficiently onto said second conveyor such that second conveyor controls the speed of said article; and a controller adapted to determine the position of the article with respect to a reference point when said change in speed is detected.

38. The device of claim 37 wherein said reference point is located halfway between said first and said second conveyors.

39. The device of claim 37 wherein said sensor comprises a horizontal array of photo-detectors positioned alongside said first conveyor.

40. The device of claim 39 wherein said horizontal array of photo-detectors extends for a horizontal distance at least equal to the distance of the greatest expected length of said article.

41. The device of claim 40 wherein said horizontal array of photo-detectors has an upstream end and a downstream end, said downstream end being placed midway between said first and said second conveyors, and said upstream end being placed upstream of said downstream end.

42. A conveyor induct system comprising:

a first conveyor;

a second conveyor aligned with said first conveyor, said second conveyor operating at a different speed than said first conveyor;

a first sensor which measures the control point of said first article as said first article passes from said first conveyor to said second conveyor;

a second sensor which measures any gap between said first article and said second article while said first article is traveling at least partially on an adjustable speed conveyor; and

a controller which compares said measured gap to a desired gap and adjusts the speed of said adjustable speed conveyor while said second package is not on said adjustable speed conveyor in order to reduce any difference between said measured gap and said desired gap.

43. The system of claim 42 wherein said adjustable speed conveyor is the same as said second conveyor.

44. The system of claim 42 wherein said first sensor comprises a horizontal array of photo-detectors.

45. The system of claim 44 wherein said second sensor comprises a horizontal array of photo-detectors.

46. The system of claim 45 wherein said second sensor measures the location of a leading edge of said first article and a trailing edge of said second article at substantially the same time.

47. The system of claim 42 wherein said second sensor measures any gap between said first and said second article at least ten times per second.

48. A conveyor induct system comprising:

a first conveyor, said first conveyor being an adjustable speed conveyor;

a second conveyor, said second conveyor aligned with said first adjustable speed conveyor, said second conveyor operating at a different speed than said first conveyor;

a sensor which repetitively measures any gap between said first article and said second article while said first article is at least partially positioned on said first adjustable speed conveyor;

a feedback controller which receives information from said sensor, said feedback controller calculating any difference between said measured gap and a desired gap, said feedback controller outputting a command for adjusting the speed of said adjustable speed conveyor based upon any difference between said measured gap and said desired gap.

49. The device of claim 48 wherein said sensor comprises a horizontal array of photo-detectors.

50. The device of claim 49 wherein said horizontal array of photo-detectors extends from said first to said second conveyor such that a portion of said horizontal array is positioned alongside said first conveyor and a portion of said horizontal array is positioned alongside said second conveyor.

51. The device of claim 48 wherein said first conveyor is positioned upstream of said second conveyor.

52. The device of claim 51 wherein said first article is positioned upstream of said second article.

53. The device of claim 48 wherein said feedback controller is a proportional-integral-derivative controller.

54. The device of claim 48 wherein said feedback controller outputs multiple commands per second to adjust the speed of said adjustable speed conveyor.